CHAPTER VII: INTEGRATIVE MEDICINE

Impact of Science on Medicine

I think it's important to explain to you where I think medicine is going, how it got to be where it is, and how, absent a tremendous reflection on the part of leaders in health care, we have a danger of getting caught in a very bad direction, a wrong direction, that will not serve the health of the public.

And I will be a bit personal in terms of my thinking, how I came about this. And I suspect Steve Straus is the same way. A great researcher, NIH card carrying hard scientist, clinical researcher, now is at the head of NCCAM, and he, like I, I think have developed a vision of, we need to be doing more than we currently do with pure science and technology to meet the needs of health care.

Now, I'm going to go through a very quick history of medicine, because I think it frames the nature of my discussion. If we think of medicine as a profession, it is recorded in the earliest recorded documents, including the papyrus papers of 3500 BCE, codified by Hippocrates.

But it was only developments, the work of the anatomists in the 1600s, and then the development of the microscope, and then pathologists came into their own dominance. It wasn't until the 1800s that science started having some application to the practice of medicine.

So the introduction of science into medicine is relatively new. And I would argue that it wasn't until the early part of the 20th century that science started having a serious impact on medicine.

And what happened was, in the 1890s, the sciences of anatomy, chemistry, germ theory -- which led to the work that Steve and I have been so involved in -- physics, with the

development of x-ray, gave great capabilities to the practice of medicine. But here is a very important point.

While the emerging sciences were capable, had tremendous resources to impact the practice of medicine in the United States in the early 1900s, there were 800 or more medical schools. Most of them were storefront medical schools, and virtually none of them had a faculty that was involved in research and were teaching medical students about the emerging sciences.

Fortunately, the very famous Flexner Report that was funded by the Carnegie Foundation understood this discrepancy between science and the practice of medicine. Medicine was being practiced without science.

And what they recommended, and what really came forward in the very late 1800s with the founding of Johns Hopkins, and personally at Duke, Duke was founded, in many ways, based on the Flexner Report. The indication that science could positively impact the practice of medicine led to the structure of the academic health center, and led very much to the introduction of science to solve the understanding of disease.

The direction of science -- if you think of the most seminal observation in the late 1800s, it was the germ theory, which demonstrated that amongst the greatest scourges, whether it be tuberculosis or puerperal sepsis, were caused by bacteria that could be isolated and identified. And this led to a core belief that for every disease, there is a single ideological factor that, if you could find it and fix it, you're going to get beyond the problem.

And I think that this concept became embedded in the development of the understanding of the pathophysiological basis of medicine that all of the physicians in the audience, including myself, were trained with. That is, for every disease, there is a pathogenetic mechanism, molecular, structural, and what we need to do is find it and fix it.

Now, this has led to incredible discoveries and wonderful cures, and I would be the last

one in the world to do anything other than to applaud the impact that science has had on the practice of medicine. It has been magnificent.